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RESEARCH NEWS

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Marty A. Fernandez

Growing up, Marty A. Fernandez was fascinated by watching her father, a pediatric neurologist, as he went on rounds and visited patients in their homes. “His work had a profound impact on me,” she says. “Many of the diseases he treats are rare, and when we talked about his cases, I could see how diagnosing them was like putting together a puzzle.”

But Fernandez decided early on she wanted to be a biomedical scientist rather than a doctor. That decision was solidified in college when she started working on the human immunodeficiency virus (HIV) in Ben M. Dunn’s lab at the University of Florida in Gainesville. Fernandez studied HIV-1 subtype C, a virus strain commonly found in Africa and Asia. “I started to see that research could help me understand not just the diseases that my dad was treating, but many others as well,” she says.

Dunn trains his students to work independently, and Fernandez soon found herself working with graduate students to study an HIV protein involved in drug resistance. Dunn was so impressed that he asked Fernandez to take over the responsibilities of a departing graduate student. “Marty did what was needed to carry that project forward in a very advanced way,” Dunn says. “Her work was spectacular. She was operating on at least the level of a third-year graduate student.”

Marty A. Fernandez University of Florida Gainesville, FL Photo: Daron DeanA high-resolution photograph is available on request. Request a photo

Fernandez helped identify the structure of an HIV protein using the tools of x-ray crystallography, which allows researchers to deduce a protein’s structure from the diffraction patterns created when a crystal is bombarded by x-rays. Fernandez was one of the co-authors when the research article was published last year in the journal Biochemistry.

Fernandez says she became fascinated by the ways that science could be applied to improve the lives of people who are infected with HIV. When she was nominated to participate in HHMI’s Exceptional Research Opportunities Program (EXROP), she sought out HHMI investigator Stephen C. Harrison at Harvard Medical School because she wanted to learn about designing vaccines to attack the virus from a different angle. Fernandez put her x-ray

crystallography skills to work in Harrison’s lab to examine a protein that helps HIV enter cells.

Fernandez would like to earn a Ph.D. by studying structural biology, but she says she is keeping an open mind about what specific problems she will tackle. “I’m still drawn to infectious diseases like HIV, malaria, and hepatitis B, but I’m also getting more interested in Alzheimer’s disease, which brings me back to my dad’s work in neurology,” she says. “There’s also a personal component to this, because my grandmother developed dementia just before she passed away.”

Although she’s aware that she’ll be putting in long hours in the lab, Fernandez knows she also wants to make time to teach and mentor younger students. She wants them to understand that stereotypes don't have to dictate their goals in life. “I hope that as a minority researcher I can help advance minority students’ careers in science, not just passively by serving as an example but also actively through teaching, advising, and interaction,” she says. “I don't want to simply be a statistic, a check in the Hispanic box, for the scientific fields in this country. I want to take an active role in advancing minority students' careers in science.”